

## FORRESTER KETLEY &amp; CO

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TRADE MARK ATTORNEYS  
ESTABLISHED 1884

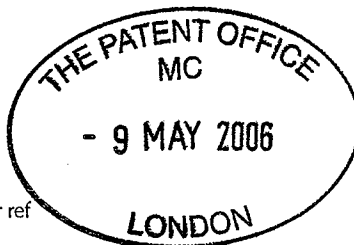
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Our ref  
P18136GB - CXL/md

Your ref

Date  
08 May 2006

Dear Sirs

B226632/ 001 D00389 D0CS.....  
10MAY06 0.00 NONE 0323990.2

Re: UK Patent Application No. 0323990.2  
Teledyne Technologies Incorporated  
Our Ref: P18136GB

We refer to the above-identified application and to the examination report dated 16 February 2006. We request that the time limit for responding to the examination report be extended pursuant to Section 117B. In response to the examination report, we file in duplicate amended pages 7 and 25 to replace the corresponding pages presently on file. A marked-up copy of the amended pages is additionally enclosed.

In response to the objection raised in the examination report, claim 16 has been revised to indicate that the avionics system comprises a plurality of avionics and/or electronic engine control line replaceable units, one or more of which store aircraft maintenance and diagnostic data.

It is therefore submitted that the objection raised by the examiner is now addressed and that the application, as amended, meets the requirements of the Act and Rules and is in order for grant.

Yours faithfully

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Exhibit E  
Page 408



Your ref : P18136GB-NF/jsd  
Application No: GB0323990.2  
Applicant : Teledyne Technologies Inc

Examiner : Mr Nigel Hall  
Tel : 01633 813684  
Date of report : 16 February 2006

Latest date for reply: 18 April 2006

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## **Patents Act 1977**

### **Examination Report under Section 18(3)**

#### **Basis of the examination**

1. My examination has taken account of the amendments filed with your agent's letter of 14<sup>th</sup> January 2006.

#### **Inventive step**

1. The argument for the inventiveness of the independent claims set out in your agent's letter of 14<sup>th</sup> January 2006 is based on the fact that a plurality of avionics and/or electronic engine control line replaceable units transmit maintenance and diagnostic data from internal equipment to an on-board cellular communications unit, in distinction to the case in the cited document where data acquisition units transmit parametric flight data. Since claim 16 makes no mention of these avionics and/or electronic engine control line replaceable units, the inventive step objection of the official letter of 16<sup>th</sup> November 2005 still stands against this claim.

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Our ref

P18136GB - NHF/ns

Your ref

Date

14 January 2006



Dear Sirs

Re: UK Patent Application No. 0323990.2  
Teledyne Technologies Incorporated  
Our Ref: P18136GB

In connection with this Application and with reference to the outstanding Examination Report we now file amended pages 3-9, 11 and 11B and also fresh pages of Claims to be substituted for the corresponding pages as at present on file.

The Examination Report maintains an inventive step rejection with respect to US Patent No. 6181990.

The Applicants' invention is directed to an aircraft maintenance and diagnostic data download system. The aircraft maintenance and diagnostic data download system comprises an aircraft that has an avionics system and a communication unit. The avionics system comprises a plurality of avionics and/or electronic engine control line replaceable units, and one or more of the avionics and/or electronic engine control line replaceable units store aircraft maintenance and diagnostic data. The communications unit is connected to one or more avionics and/or electronic engine control line replaceable units.

The avionics system also comprises a cellular infrastructure that is in communication with the communications unit after the aircraft has landed. The communications unit is used for downloading the aircraft maintenance and diagnostic data, and the communication is initiated automatically upon the landing of the aircraft.

Further, the avionics system comprises a data reception unit that is connected to the cellular infrastructure. The data reception unit is remotely located from the aircraft, and the data reception unit receives the aircraft maintenance and diagnostic data from the communications unit.

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VAT Registration No. GB-110 0242 58

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The Applicants' invention is also directed to a method of downloading maintenance and diagnostic data from an aircraft. At the aircraft, maintenance and diagnostic data is received from a plurality avionics and/or electronic engine control line replaceable units. The maintenance and diagnostic data is then downloaded via a cellular communications infrastructure after the aircraft has landed. The cellular communications infrastructure is accessed automatically upon landing of the aircraft. The downloaded maintenance and diagnostic data is received at a data reception unit. The data reception unit is remotely located from the aircraft.

US Patent No. 6,181,990 (the '990 patent) discloses an aircraft data transmission system. The aircraft data transmission system is used to transfer parametric flight data to a flight operations center. Examples of parametric data include air speed, altitude, vertical acceleration, heading and time parameters. The aircraft data transmission system has a data acquisition unit. It also includes a communications unit located in the aircraft and in communication with the data acquisition unit. The system further includes a cellular infrastructure in communication with the data communications unit after the aircraft has landed, and a data reception unit in communication with the cellular infrastructure. Once the cellular connections are made, data can flow bidirectionally from or to the aircraft.

The Examination Report cited the '990 patent against Claims 1 through 36. The Applicants respectfully assert that independent Claims 1, 12, 17-18, 21-22, 28, 32 and 36-40. are patentable over the '990 patent. More specifically, the Applicants respectfully submit that the Claims as now amended are not anticipated nor rendered obvious by the cited reference.

The, '990 patent discloses a data transmission system that has a data acquisition unit. The data transmission system transmits parametric flight data, such as air speed, altitude, vertical acceleration, heading and time parameters to a flight operations center via a cellular infrastructure.

Unlike the Applicants' invention, the '990 lacks a description of an avionics system that comprises a plurality of avionics and/or electronic engine control line replaceable units. These avionics and/or electronic engine control line replaceable units are different from data acquisition units. The avionics and electronic engine control line replaceable units obtain maintenance and diagnostic data from internal equipment (other than data acquisition units) that resides on-board airplanes. Such internal equipment may include an Electronic Engine Computer (EEC), Data Encryption Unit (DEU), Flight Management Computer (FMC), etc. The maintenance and diagnostic data received from the internal equipment (other than data acquisition units) is then downloaded. Contrastingly, in the '990 patent, the data acquisition unit is limited to acquiring parametric data. The '990 patent lacks any mention of or reference to acquiring maintenance and diagnostic data from internal equipment (other than data acquisition units). Moreover, in the '990 patent, the parametric data -- not maintenance and diagnostic data -- is transmitted.

Clearly, the '990 patent does not teach, suggest or disclose receiving maintenance and diagnostic data from a plurality of avionics and/or electronic engine control line

replaceable units and downloading such data as described in the Claims as now amended.

In light of the difference discussed above, the Applicants submit that the independent Claims now on file, and hence all the Claims dependent thereon, recite novel physical and functional features that patently distinguish over any and all references. Moreover the dependent Claims recite additional novel structures, functions, and steps that are even more remote from the teachings of the cited references.

We trust that the Application will now be found to be in order for grant.

Yours faithfully

FORRESTER KETLEY & CO





INVESTOR IN PEOPLE

Your ref : P18136GB-NF/jsd Examiner : Mr Nigel Hall  
Application No: GB0323990.2 Tel : 01633 813684  
Applicant : Teledyne Technologies Inc Date of report : 16 November 2005  
Latest date for reply: 16 January 2006 Page 1/1

## Patents Act 1977 Examination Report under Section 18(3)

### Basis of the examination

1. My examination has taken account of the amendments filed with your agent's letter of 30 September 2005.

### Novelty

2. The invention, as defined by the new claims is considered to be novel and no longer anticipated by WO 03/092310, which lies in the s. 2(3) field.

### Inventive step

3. It is argued in your agent's letter that the claims are inventively distinguished from the cited US 6181990 because they relate to downloading maintenance and diagnostic data while the cited document discloses transmitting flight data. It appears to the examiner that the arrangement of US 6181990 lends itself to downloading of any data gathered by the on-board avionics, including such data as could assist with maintenance and diagnostics. Moreover, lines 21-28 of column 1 indicate that the flight data of the cited could indeed assist in such maintenance and diagnostics.

Accordingly, I am unable to accept your Agent's argument for waiving the objection.

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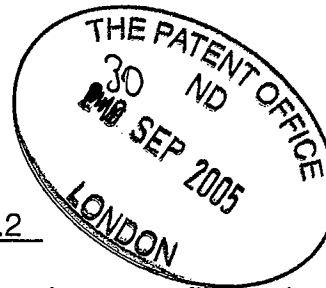
Our ref  
P18136GB-NF/jsd

Your ref  
GB 0323990.2

Date  
30 September 2005

Dear Sirs

Re: British Patent Application No. 0323990.2  
Teledyne Technologies Incorporated  
Our Ref: P18136GB Your Ref: GB 0323990.2



We refer to the Official Letter of 30th March, 2005 and we now file in duplicate amended pages 3 to 11B of description to be substituted for pages 3 to 11 as at present on file, and a fresh page 21 of description to be substituted for pages 21 and 22 as at present on file, and fresh pages 22 to 32 to be substituted for the Claims as at present on file.

The passages identified by the Examiner on original pages 21 and 22 and Claim 41 have been deleted.

It is noted that the Examiner seeks to reject the Claims as originally filed on the ground of lack of novelty in view of WO 03/092,310 A1 ((Teledyne) and in view of lack of inventive step with regard to US 618,199 B1 (Grabawsky). It is respectfully submitted that the amended Claims, as now filed, are novel and inventive with regard to the prior art.

The Applicants' invention is directed to an aircraft **maintenance and diagnostic data download** system. The aircraft maintenance and diagnostic data download system comprises an aircraft that has an avionics system and a communication unit. The avionics system comprises a plurality of line replaceable units, and one or more of the line replaceable units store aircraft maintenance and diagnostic data. The communications unit is connected to one or more line replaceable units.

The avionics system also comprises a cellular infrastructure that is in communication with the communications unit after the aircraft has landed. The communications unit is used for downloading the aircraft maintenance and diagnostic data, and the communication is initiated automatically upon the landing of the aircraft.

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Further, the avionics system comprises a data reception unit that is connected to the cellular infrastructure. The data reception unit is remotely located from the aircraft, and the data reception unit receives the aircraft maintenance and diagnostic data from the communications unit.

The Applicants' invention is also directed to a method of **downloading maintenance and diagnostic data** from an aircraft. At the aircraft, maintenance and diagnostic data is received from a plurality line replaceable units. The maintenance and diagnostic data is then downloaded via a cellular communications infrastructure after the aircraft has landed. The cellular communications infrastructure is accessed automatically upon landing of the aircraft. The downloaded maintenance and diagnostic data is received at a data reception unit. The data reception unit is remotely located from the aircraft.

#### WO 03/092310 A1

WO 03/092310 A1 (the '310 patent) discloses an aircraft transmission system. The aircraft transmissions system is used to **upload software and database changes** to the aircraft avionics system. An upload may include installing new software releases and operational databases into on-board avionics subsystems. The aircraft transmission system has a communications device located in an aircraft; an avionics information storage device located in the aircraft and in communication with the communications device and a cellular infrastructure; a computer remotely located from the aircraft and in communication with the cellular infrastructure. At least one of the communications devices and the computer is used for establishing a bi-directional communications channel via the cellular infrastructure between the communications device and the computer and initiating a data exchange therebetween.

#### U.S. 6181 990

U.S. Patent No. 6, 181, 990 (the '990 patent) discloses an aircraft data transmission system. The aircraft data transmission system is used to **transfer flight data to a flight operations centre**. Flight data typically refers to parameters such as air speed, altitude, vertical acceleration, heading and time parameters.. The aircraft data transmission system has an acquisition unit. It also includes a communications unit located in the aircraft and in communication with the data acquisition unit. The system further includes a cellular infrastructure in communication with the data communications unit after the aircraft has landed, and a data reception unit in communication with the cellular infrastructure. Once the cellular connections are made, data can flow bidirectionally from or to the aircraft.

#### The '310 Patent and '990 Patent as Compared to the Applicants' Independent Claims

The Examination Report cited the '310 patent and '990 patent against Claims 1 through 36. The Applicants respectfully assert that independent Claims 1, 12, 17-18, 21-22, 28, 32 and 36-40. are patentable over the '310 patent and the '990 patent. More specifically, the Applicants respectfully submit that independent Claims 1, 12, 17-18, 21-22, 28, 32 and 36-40 are not anticipated nor rendered obvious by the cited references, taken individually or in combination.

The '310 patent discloses **uploading software and database changes** to the **aircraft avionics system**, such as changes to a Navigation database, via a cellular infrastructure.



While, the '990 patent discloses **transmitting flight data**, such as air speed, altitude, vertical acceleration, heading and time parameters to a **flight operations center** via a cellular infrastructure.

Unlike the Applicants' invention, neither the '310 patent nor the '990 patent discusses or refers to the **downloading of maintenance and diagnostic data**. More specifically, the '310 patent discusses software and database changes, and the '990 patent discusses flight data. Maintenance and diagnostic data is different from software and database changes, and maintenance and diagnostic data is also different from flight data. In particular, maintenance and diagnostic data is used to repair an aircraft. On the other hand, the software and database changes help the aircraft operate more efficiently, and flight data is used to evaluate the aircraft's flight performance.

Clearly, neither of the cited references teach, suggest or disclose **downloading maintenance and diagnostic data** to a data unit that is remotely located from the aircraft as described in the Applicants' independent Claims 1, 12, 17-18, 21-22, 28, 32 and 36-40.

In light of the difference discussed above, the Applicants submit that independent Claims 1, 12, 17-18, 21-22, 28, 32 and 36-40, and hence all the Claims dependent thereon, recite novel physical and functional features that patently distinguish over any and all references. Moreover the dependent Claims recite additional novel structures, functions, and steps that are even more remote from the teachings of the cited references.

We trust that the Application will now be found to be in order for Grant.

Yours faithfully

FORRESTER KETLEY & CO





Your ref : P18136GB-NF/jsd  
 Application No: GB0323990.2  
 Applicant : Teledyne Technologies Inc

Examiner : Mr Nigel Hall  
 Tel : 01633 813684  
 Date of report : 30 March 2005

Latest date for reply: 1 August 2005

Page 1/1

## Patents Act 1977 Examination Report under Section 18(3)

### Novelty

1. The invention as defined in claims 1-7, 9-36 is not new because it has already been disclosed in the following document:

WO 03/092310 A1 (Teledyne)

This document was found in updating the original search. No amendment of your claims will be needed in its respect if you can show that the priority date of your invention is not later than the priority date of the relevant disclosure in that document.

### Inventive step

2. The invention as defined in claims 1-36 is obvious in view of what has already been disclosed in the following documents:

US 6181990 B1 (Grabowsky)

The claims, apart from claim 8, are distinguished from the disclosure of the cited document solely by the fact that the aircraft-borne avionics system comprises line replaceable units, to which the communications units are connected.

The use of ISDN to transfer the downloaded data to the flight operations centre (claim 8) does not appear inventive.

### Other matters

3. Since the scope of protection is defined by the claims, the paragraphs of page 21, lines 21-29 and page 22, lines 5-10 are unnecessary. It is noted that the claims are limited to transferring data after the aircraft has landed, contrary to what is stated in the first of these paragraphs.

4. Claim 41 is of uncertain scope and should be deleted.